

**What Is Claimed Is:**

1. A method for detecting and tracking an object, comprising:  
receiving image data from a sensor field of view;  
dividing the image data into a plurality of different spatial sub-regions using  
a predetermined spatial filtering algorithm and determining SNR (signal-to-noise  
ratio) for each spatial sub-region; and  
detecting whether at least one object is within said field of view based on  
comparing each SNR to a predetermined threshold for each sub-region and  
determining whether one or more predetermined thresholds are satisfied.
2. The method of claim 1, wherein said receiving includes receiving image  
data output from an infrared search and track sensor having background clutter  
within the field of view.
3. The method of claim 1, wherein said dividing includes high-pass filtering  
the image data and dividing the filtered image data by a noise level estimation for  
background clutter within the field of view.
4. The method of claim 1, wherein said dividing includes high-pass filtering  
the image data with predetermined filter coefficients and dividing the filtered image  
data by the noise level estimation wherein the noise estimation being estimated  
using one of said high-pass filtering with the predetermined coefficients and high-  
pass filtering with different predetermined coefficients.
5. The method of claim 1, wherein said detecting includes determining said  
predetermined threshold for each sub-region based on at least one measured  
standard deviation for noise in background clutter within the field of view.
6. The method of claim 5, wherein said detecting includes determining said  
predetermined threshold for each sub-region based on the at least one measured

standard deviation for noise to reduce probability of false alarm for a sub-region with a noise standard deviation higher than a predetermined threshold or increase probability of detection for a sub-region with a noise standard deviation lower than a predetermined threshold.

7. The method of claim 1, wherein said dividing includes dividing the image data into at least sixty-four sub-regions.

8. The method of claim 1, further comprising:

for said at least one object detected within a field of view having background clutter greater than a predetermined threshold, comparing said image data with previously received image data using a high-pass filter and registering pixel data for each filtered set of image data; and

detecting whether the previous detecting of said at least one object is accurate using difference of previously received, filtered image data with filtered image data.

9. The method of claim 8, wherein said detecting includes detecting accuracy of previous detection using said difference to reduce probability of false alarm.

10. A system for detecting and tracking an object, comprising:

a receiver for receiving image data from a sensor field of view;

a controller for dividing the image data into a plurality of different spatial sub-regions using a predetermined spatial filtering algorithm and determining SNR (signal-to-noise ratio) for each spatial sub-region; and

a detector for detecting whether at least one object is within said field of view based on comparing each SNR to a predetermined threshold for each sub-region and determining whether one or more predetermined thresholds are satisfied.

11. The system of claim 10, wherein said receiver to receive image data output from an infrared search and track sensor having background clutter within the field of view.

12. The system of claim 10, wherein said controller to high-pass filter the image data and divide the filtered image data by a noise level estimation for background clutter within the field of view.

13. The system of claim 10, wherein said controller to high-pass filter the image data with predetermined filter coefficients and divide the filtered image data by the noise level estimation wherein the noise estimation being estimated using one of said high-pass filtering with the predetermined coefficients and high-pass filtering with different predetermined coefficients.

14. The system of claim 10, wherein said detector to detect the at least one object using said predetermined threshold for each sub-region based on at least one measured standard deviation for noise in background clutter within the field of view.

15. The system of claim 10, wherein for said at least one object detected within a field of view having background clutter greater than a predetermined threshold, said controller to compare said image data with previously received image data using a high-pass filter and register pixel data for each filtered set of image data; and

    said detector to detect whether the previous detecting of said at least one object is accurate using difference of previously received, filtered image data with filtered image data.

16. A machine-readable medium having stored thereon a plurality of executable instructions, the plurality of instructions comprising instructions to:
  - receive image data from a sensor field of view;
  - divide the image data into a plurality of different spatial sub-regions using a predetermined spatial filtering algorithm and determining SNR (signal-to-noise ratio) for each spatial sub-region; and
  - detect whether an object is within said field of view based on comparing each SNR to a predetermined threshold for each sub-region and determining whether one or more predetermined thresholds are satisfied.
17. The medium of claim 16, wherein said instructions to receive include receiving image data output from an infrared search and track sensor having background clutter within the field of view.
18. The medium of claim 16, wherein said instructions to divide include high-pass filtering the image data and dividing the filtered image data by a noise level estimation for background clutter within the field of view.
19. The medium of claim 16, wherein said instructions to divide include high-pass filtering the image data with predetermined filter coefficients and dividing the filtered image data by the noise level estimation wherein the noise estimation being estimated using one of said high-pass filtering with the predetermined coefficients and high-pass filtering with different predetermined coefficients.
20. The medium of claim 16, wherein said instructions to detect include determining said predetermined threshold for each sub-region based on at least one measured standard deviation for noise in background clutter within the field of view.